IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of	**CUSTOMER NO. 27717**
Daniel E. Boss, et al.	Examiner: Yean Hsi Chang
Title: HARD DISK DRIVE MOUNTING BRACKET FOR NOISE AND VIBRATION CONTROL	Group Art Unit: 2835
Serial No.: 10/014,745	Confirmation No. 9390
Filing Date: October 23, 2001	
Seyfarth Shaw Docket No. 403391	

Mail Stop Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF RICHARD K. WILLIAMS UNDER 37 CFR §1.132

I, Richard K. Williams, declare and state that:

1. I am one of the named inventors in the above-captioned application and am familiar with the prosecution history thereof.

2. Prior to the filing of the above-captioned application, I authored a report on a study of various noise-damping treatments for a Western Digital Corp. set top box including a hard disk drive and provided with a stainless steel shield for the printed circuit board ("PCB"), to compare the noise-damping performance of the various treatments. An expurgated copy of the report with dates removed, is attached hereto as Exhibit 1.

3. As part of the study, composite sound power measurements were taken of the disk drive alone (with no noise damping treatment) of the set top box, measurements b ing taken

from only the top side of the drive and from only the bottom side of the drive, with and without the stainless steel shield in place. Table 2 of the report shows that the composite sound power emanating from the PCB side of the drive exceeded that emanating from the top side of the drive by more than two dBA, whether or not the shield was in place. This was a significant discovery since, theretofore, designers of drive mounting arrangements had typically measured simply the total noise emanating from a disk drive without any recognition that the noise level might differ at different locations on the disk drive.

4. The study then measured composite sound power resulting from systems, each including the disk drive together with a mounting arrangement. Several different arrangements were tested, including a base line, consisting of hard mounting of the top side of the disk drive to a steel bracket, and a number of different sound damping arrangements. Table 1 shows that all of the damping arrangements, which included various combinations of damping techniques, including forming the bracket of a damped metal laminate ("DML") material, utilizing isolators on the fasteners, and inverting the disk drive so that the PCB side is disposed toward the bracket, produce significantly lower composite sound power than the base line arrangement.

5. Significantly, Table 1 shows that merely inverting the disk drive, so that the PCB side is disposed up facing the bracket, resulted in a decrease of over two dBA, as compared to a technique wherein everything else remained the same except the orientation of the drive. This was consistent with the results summarized in Table 2, showing more sound emanating from the PCB side then from the top side of the drive and is reflected in the Conclusions on the last page of the report, which state that "Mounting the drive in an inverted orientation reduces drive noise by an additional two dBA."

All statements made herein of my own knowledge are true, all statements made on information and belief are believed to be true and these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: Nov. 6, 2003

Richard K. Williams